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1988/89 Moose Age and Sex Survey — Game Hunting Area 8:

By Cross, Dale W. 1990

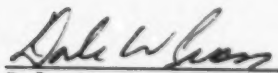
**Manitoba
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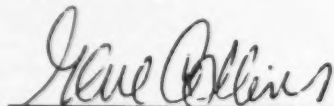
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MS REPORT NO. 90-13

1988/89 Moose Age and Sex Survey - Game Hunting Area 8

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Manitoba Natural Resources
Wildlife Branch

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1988/89 Moose Age and Sex Survey for Game Hunting Area 8 flown in
January, 1989

Department of Natural Resources, Wildlife Branch

MS Report No. 90 - 13, ..., p.p.

ABSTRACT

A total of 198 moose (*Alces alces*) were observed and classified in Game Hunting Area 8 during the 1988 moose age and sex survey flown 4, 5, 6 and 8 of January, 1989. Calves comprised 27% of the total sample for a ratio of 59 calves:100 cows, while adult males accounted for 28% of the sample for a ratio of 61 bulls:100 cows. A larger segment of males were classified as yearlings (20%) in comparison to the 1987 survey (13%). Calf twinning rate was 23%, which is comparable to previous observed twinning rates. Twenty-nine moose observations per hour compared favourably with the 1975 - 1987 mean of 27.8 moose per hour. Snow and weather conditions were generally favourable during the survey.

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INTRODUCTION

The objective of the survey was to report on the calf survival to six months and age and sex composition of the moose population in Game Hunting Area 8.

METHOD

A Cessna 206 fixed wing aircraft with two observers was used throughout the survey. The presence or the absence of the vulva patch was used to sex all antlerless adult moose. As in previous years, the majority of the survey was flown in the lower portion of G.H.A. 8 in high density areas south of the Moose Lake highway to maximize moose encounters (Fig. 1). In addition, moose were also classified while enroute to population survey blocks in the upper area north of the Moose Lake road.

Moose were classified as adult males, adult females, or calves. Adult males with antlers were further categorized as yearling or teenager, class I; medium or sub-prime, class II; and large or prime, class III (1989 personal communication, V. Crichton). Whenever possible, antlerless males were also classified using body size, coloration, and bell size.

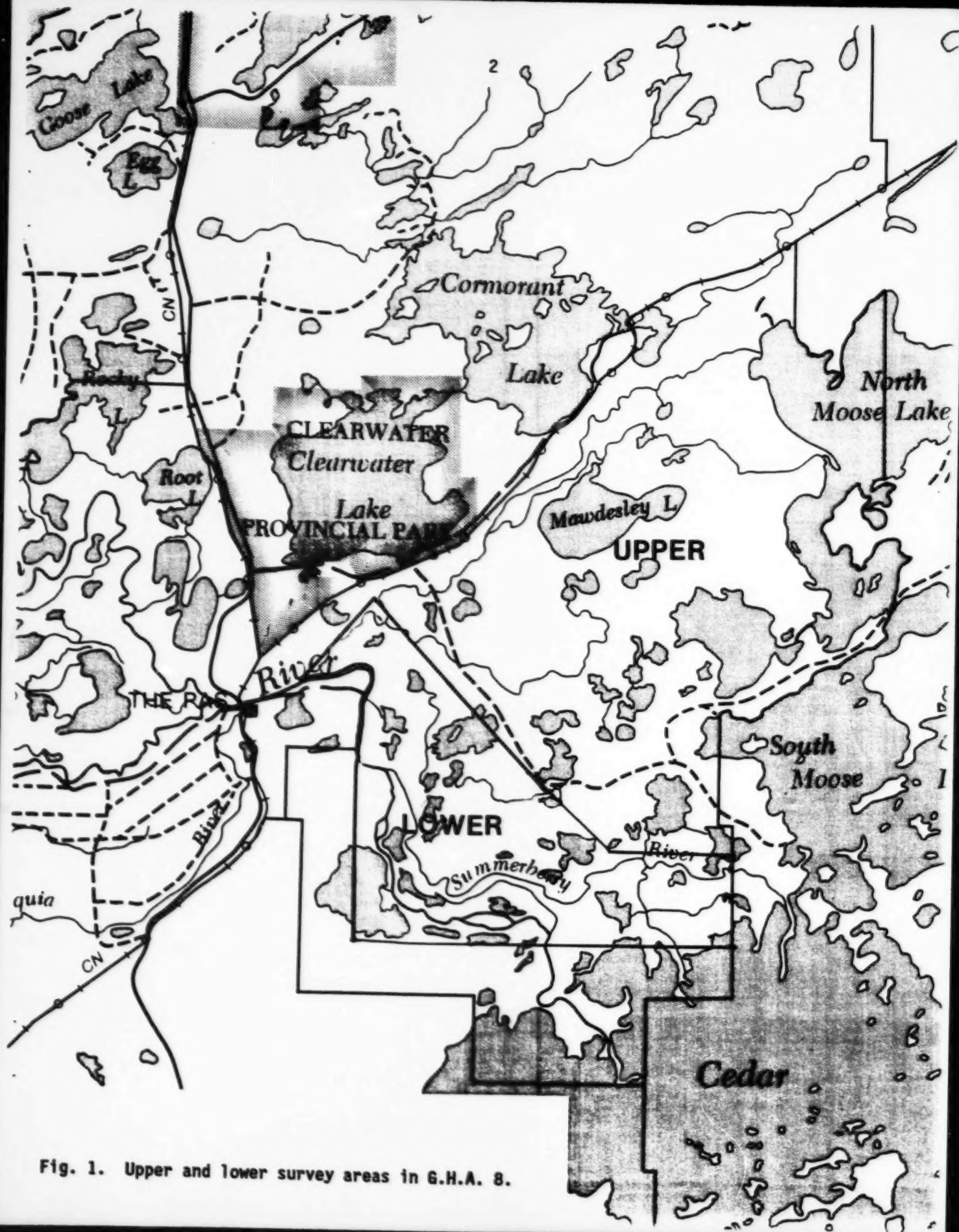


Fig. 1. Upper and lower survey areas in G.H.A. 8.

RESULTS

A total of 158 moose were classified (Table 1) in the lower portion of G.H.A. 8 during 6.2 hours of survey 4, 5, 6 January, 1989. Moose encounters per hour of 29 (4, 5 January, 1989 survey data) were down from 41 moose per hour recorded in 1987 (Table 1), but compares favourably with the 1975 - 1987 mean of 27.8 moose per hour. While conducting moose population surveys in the eastern and northern portions of G.H.A. 8, an additional 40 moose were classified for a total sample of 198 moose. Figures 2 through 4 illustrate moose observations and flight lines of 4, 5, 6 January, 1989.

Calves comprised 27% of the total sample for a ratio of 59 calves:100 cows; adult males accounted for 28% of the sample for a ratio of 61 bulls:100 cows. A larger segment of males were classified as yearlings (20%) in comparison to the 1987 survey (13%). Calf twinning rate was 23%, which is comparable to previous G.H.A. 8 survey twinning rates. Comparative survey results for G.H.A. 8 are shown in Table 2. Survey data sheets for the 1988/89 survey are appended (Appendix 1).

DISCUSSION

Age/sex survey data is generally dated as the birth year of the current calf crop. However, population surveys which are normally conducted in January are often dated as to the year in which the survey was flown. Therefore, the 1988 age/sex survey was flown the same winter as the 1989 population survey.

Table 1. G.H.A. 8 moose observations per hour, 1975/76 - 1988/89.

Year	Survey Time	Sample Size			Moose/Hour		
		Lower	Upper	Total	Lower	Upper	Average
1975/76	5.5 hrs	190	68	258			48
1976/77	N/A			228			
1977/78	8.2 hrs	303		303			37
1978/79	7.6 hrs	236		236			31
1979/80	8.6 hrs	249		249			29
1980/81	8.0 hrs	163	120	283	30		22
1981/82	7.5 hrs	150	132	282	28		20
1982/83	7.9 hrs	145	70	215	27		18
1983/84	6.0 hrs	110	74	184	22		18
1984/85	6.8 hrs	132	101	233	27		19
1985/86	3.6 hrs	73		73	20		
1986/87	4.6 hrs	143		143	32		
1987/88	2.5 hrs	103		103	41		
1988/89	5.0 hrs	145		145	29		

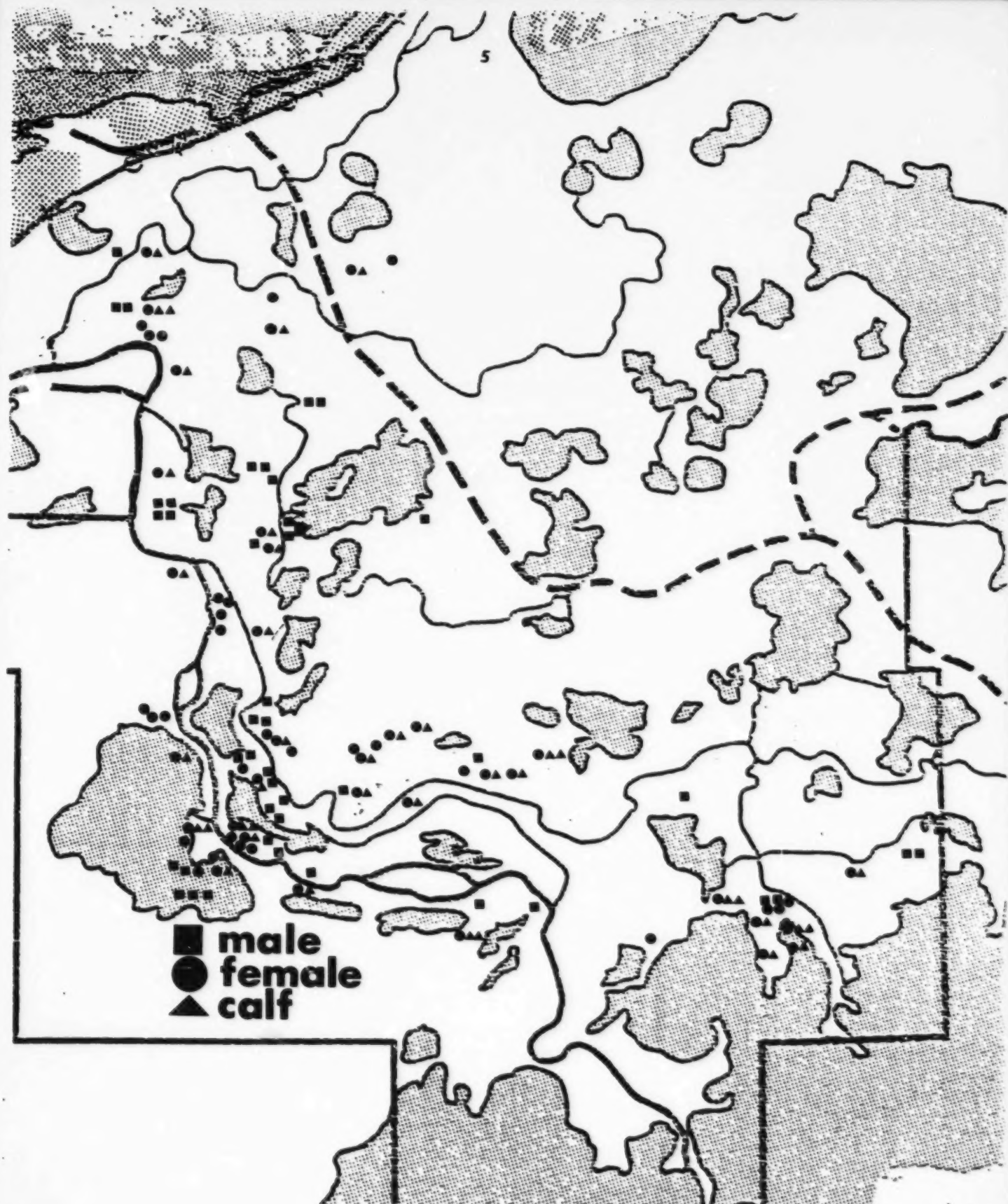
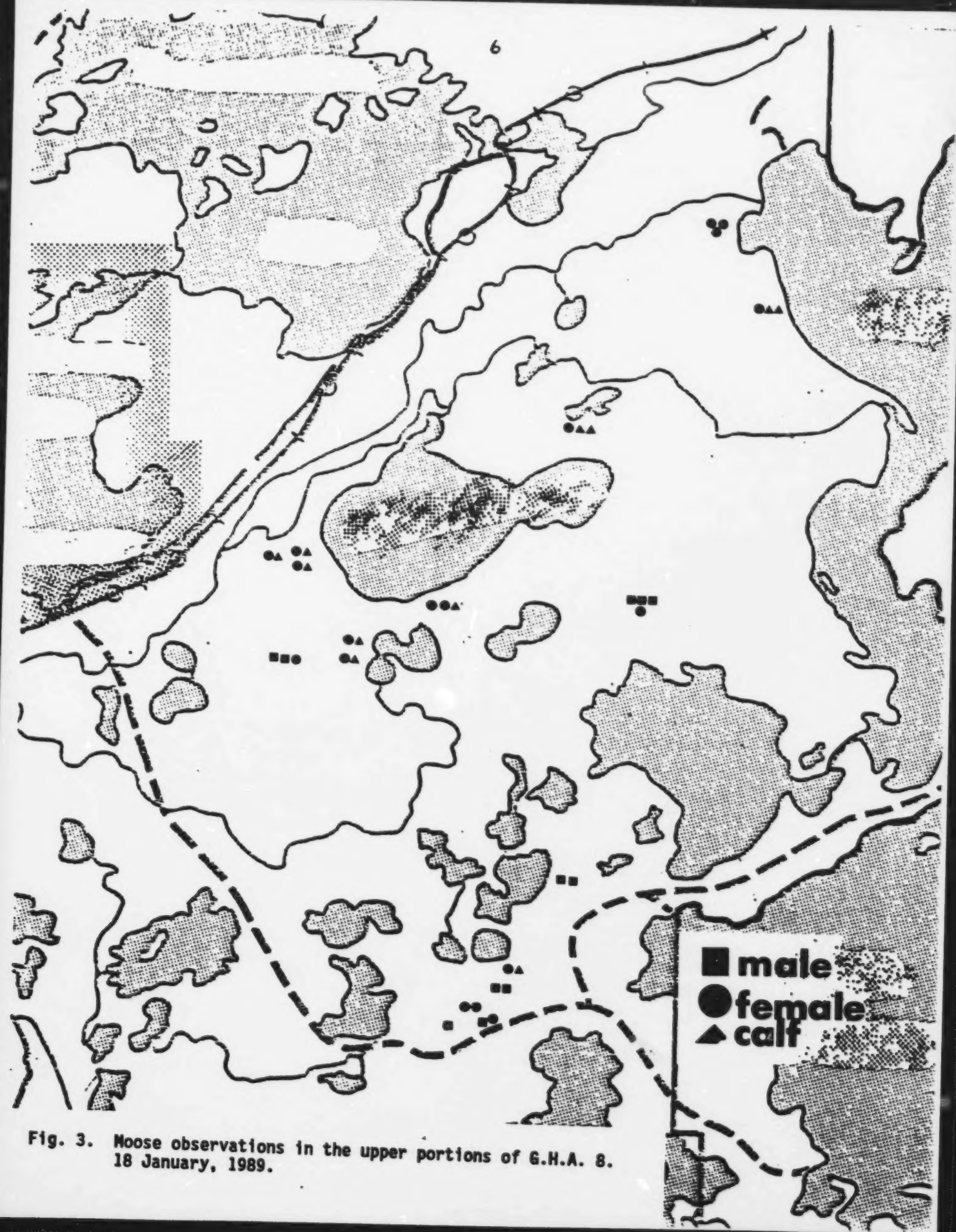


Fig. 2. Moose observations in the lower portion of G.H.A. 8.
4, 5, 6 January, 1989.



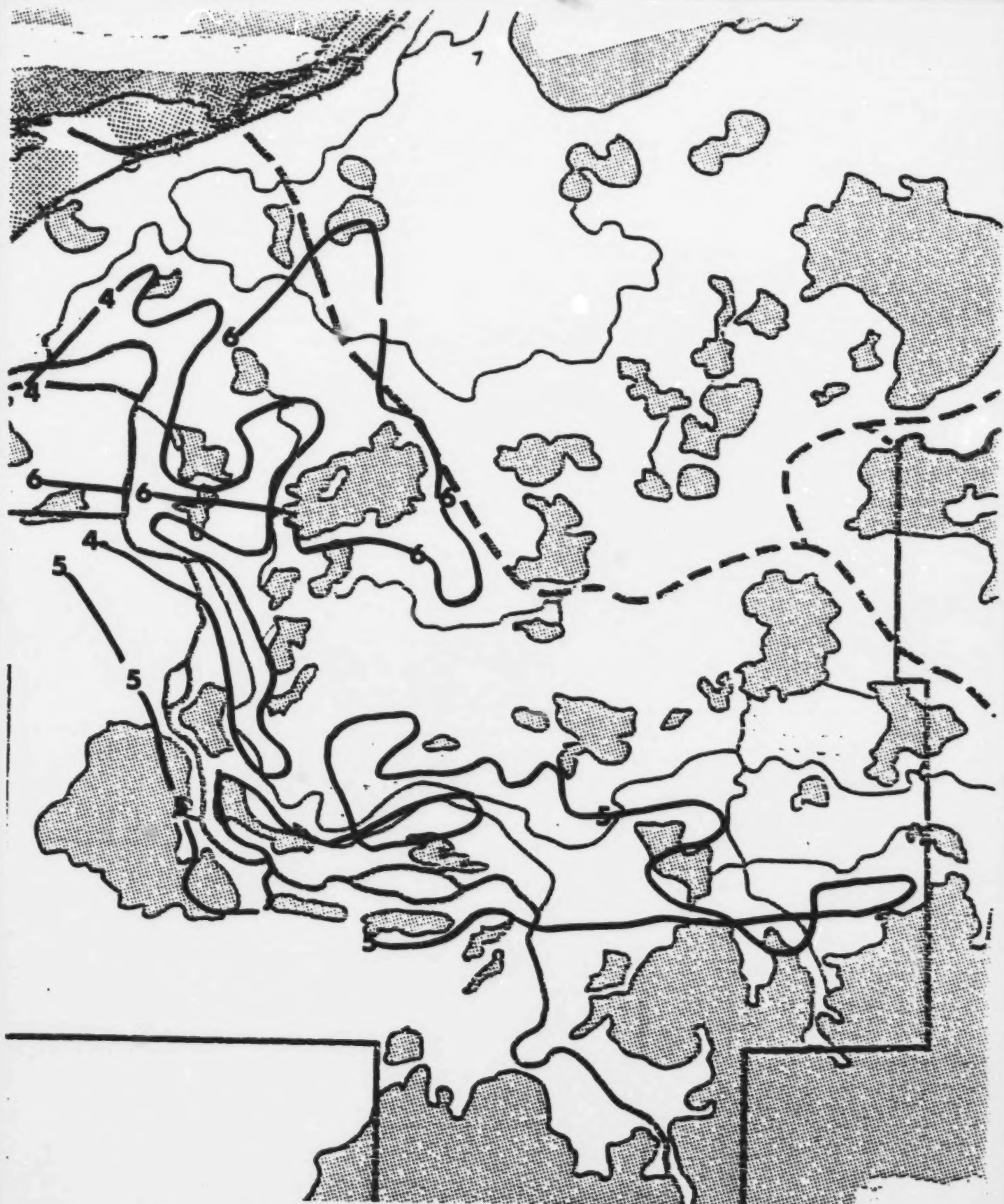


Fig. 4. Survey flight lines in the lower portion of G.H.A. 8.
4, 5, 6 January, 1989.

Table 2. G.H.A. 8 Age and sex survey data 1967 - 1989.

Date	Sample	#M	%M	#F	%F	#C	%C	M /100F	C /100F	W/O	W/1	W/2	% Success	% Twins
<u>November 9, 1967</u>														
Frog Creek Survey	39	18		15		6	15	120	40					0
<u>November 8, 1967</u>														
Total Mawdesley	132	46		52		34	26	88	65					
<u>November 17, 1969</u>														
Tom Lamb W.M.A.	48	10		21		17	35	48	81					31
Outside	73	10		31		32	44	32	103					32
Total	121	20		52		49	40	38	94					32
<u>November 26, 1970</u>														
Tom Lamb W.M.A.	232	93		69		70	30	135	101					25
Outside	199	70		63		66	33	111	105					12
Total	431	163		132		136	32	123	103					18
<u>November 26, 1971</u>														
Tom Lamb W.M.A.	95	51		30		14	15	170	47					0
<u>November 7 & 9, 1972</u>														
Tom Lamb W.M.A.	109	41		48		20	18	85	42					2
Outside	111	18		65		28	25	28	43					
Total	220	59		113		48	22	52	43					
<u>November 13, 1973</u>														
Tom Lamb W.M.A.	153	31		80		42	27	39	51					2
Outside	98	11		49		38	39	22	78					
Total	251	42		129		80	32	33	62					
<u>November 23 & 26, 1974</u>														
Tom Lamb W.M.A.	75	19		35		21	28	54	60					7
Outside	136	24		63		49	36	38	78					
Total	211	43		98		70	33	44	71					

Table 2. G.H.A. 8 Age and sex survey data 1967 - 1989. (continued)

Date	Sample	#M	%M	#F	%F	#C	%C	M /100F	C /100F	W/0	W/1	% Success	% *
<u>November 28 & 29, 1975</u>													
Tom Lamb W.M.A.	156	47		60		49	31	78	81				8
Outside	102	15		46		41	40	33	89				17
Total	258	62		106		90	35	58	85				12
<u>January 1 - 3, 1977</u>													
Tom Lamb W.M.A.	123	36		50		37	30	72	74				18
Outside	95	15		54		36	38	28	67				17
Total	228	51		104		73	31	40	70				12
<u>December 2, 12 & 29, 1977</u>													
Tom Lamb W.M.A.	175	56		73		46	26	76	63				15
Outside	128	28		57		43	36	49	75				33
Total	303	84		130		89	29	65	68				23
<u>December 15 & 16, 1978</u>													
Tom Lamb W.M.A.	140	36		65		39	28	55	60				15
Outside	96	20		45		31	32	44	69				11
Total	236	56		110		70	30	51	64				13
<u>December 11, 12 & 15, 1979</u>													
Tom Lamb W.M.A.	170	39		97		34	20	40	35				6
Outside	79	17		39		23	29	22	58				
Total	249	56		136		57	23	41	42				
<u>November 23 & 27, 1980</u>													
Tom Lamb W.M.A.	89	25		49		15	17	51	31				14
Outside	74	10		44		20	27	23	45				
Total	163	35		93		35	21	38	38				
<u>December 9, 1981</u>													
Tom Lamb W.M.A.	109	20		59		30	28	34	45				5
Outside	41	12		20		9	22	60	51				
Total	150	32		79		39	26	41	49				

Table 2. G.H.A. 8 Age and sex survey data 1967 - 1989 (continued)

Date	Sample	#M	%M	#F	%F	#C	%C	M /100F	C /100F	W/O	W/1	W/2	% Success	* % Twins
<u>November 29, December 28, 1982</u>														
Tom Lamb	W.M.A.	110	20	57		33	30	35	58					
Outside		35	7	15		13	37	47	87					
Total		145	27	72	50	46	32	32	64	29	40	3		7
<u>December 5, 19, 20, 1983</u>														
Tom Lamb	W.M.A.	74	22	34		18	24	65	53					13
Outside		36	6	17		13	36	35	76					0
Total		110	28	51	46	31	28	55	61	22	27	2	57	7
<u>November 6 & 8, 1984</u>														
Tom Lamb	W.M.A.	84	12	46		26	31	26	57					37
Outside		48	12	22		14	29	55	64					17
Total		132	24	68	52	40	30	35	59	37	22	9	46	29
<u>January 16 & 20, 1986</u>														
		89	37	37	42	15	17	100	41	24	11	2		15
<u>December 10, 1986</u>														
		143	29	70	49	44	31	42	63	35	27	8	50	23
<u>January 7 & 11, 1988</u>														
		103	23	46	45	34	33	50	73	18	22	6	60	21
<u>January 4, 5, 6, 1989</u>														
		198	55	90	45	53	27	61	59	47	33	10	48	23

* Percent of maternal cows with twins

Observing conditions, 4, 5, 6 January, 1989 were considered very good to excellent with approximately 22 cm of snow cover prevalent throughout the survey area. Viewing conditions were comparable to those experienced in previous years. An additional 10 cm of fresh snowfall would have covered the remaining exposed grasses and willow patches that lowered observing conditions in some locations.

Higher densities or groups of moose were found in the same general locations as other years. Each year, more moose are using the southeast part of Kelsey Lake where receding lake levels have resulted in a westward expansion of the willow flats. Moose numbers appear to be increasing each year in the Head River area east of Head River Lake. The increasing utilization of both these relatively small areas is attributed to an improvement in available forage.

Over mature habitat may be the reason why high density areas of the 1970's, such as Moose Mountain, Landry Lake ridge, Big Bend - Lake 14, continue to be almost void of moose. It is interesting to note the absence of moose in the lower Hill Island area during this survey, yet moose were observed in this area two weeks later during the moose population survey, 26 January, 1989 (Cross D. 1989).

The 1988 moose/hr ratio (29) for the lower portion of G.H.A. 8 is comparative to the 1980 ratio (30) (Fig. 5) which suggests that the 1988 population may be at a level similar to the 1981 population survey estimate of 655 +/- moose (Cross et al, 1983). In contrast, the 1989 G.H.A. 8 moose population survey results (Cross, D. 1989) indicates a moose population of 996 +/- 196 moose (Fig. 6).

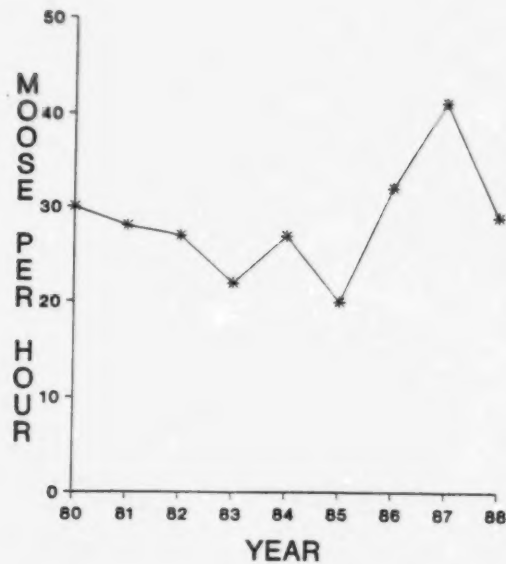


Fig. 5. Moose per hour in the lower portion of G.H.A. 8, 1980 - 1988.

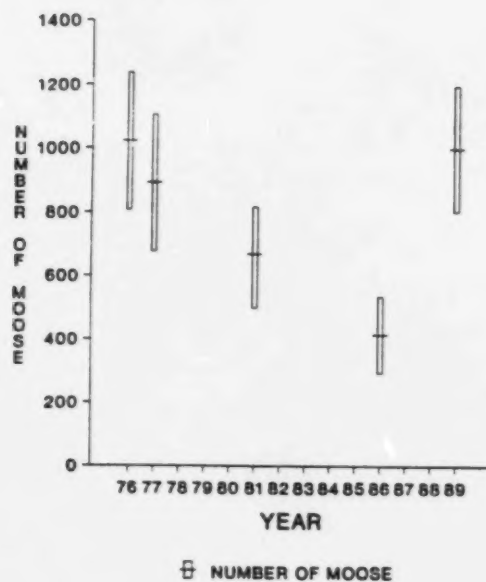


Fig. 6. G.H.A. 8 moose population estimates for 1976, 1977, 1981, 1986, 1989. Point estimates are shown as solid squares. Confidence intervals (95%) are shown as vertical bars.

Moose/hour ratio for the whole of G.H.A. 8 are not available as the 1988 age/sex survey did not cover the northern portion of G.H.A. 8. It is the northern portion where a population increase of 300% occurred since a population survey was last flown in 1986.

With the exception of five years, the male - female ratio of G.H.A. 8 moose has been over 40 males per 100 females. An increasing ratio (Fig. 7) the past three years may be attributed to the 1985 season closure for both licenced and Treaty hunting.

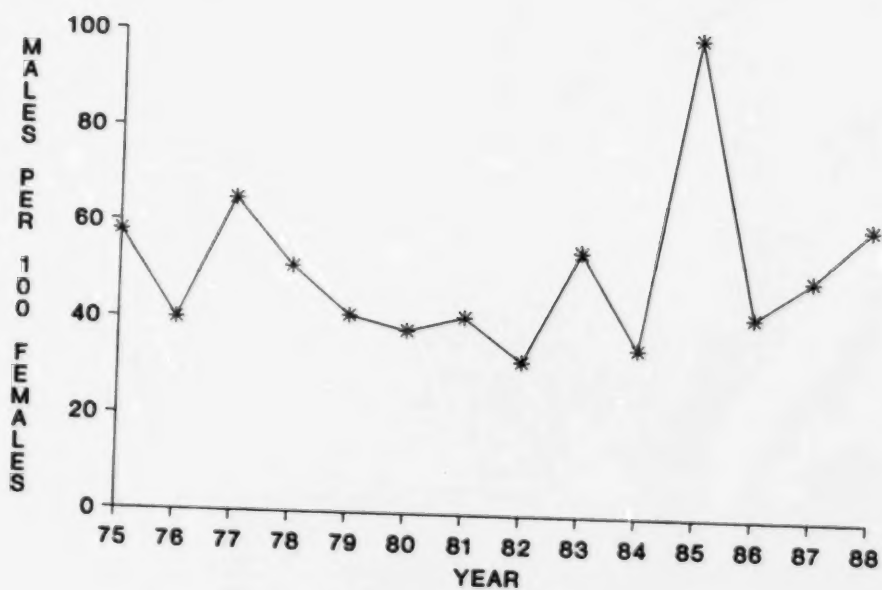


Fig. 7. Males per 100 female moose in G.H.A. 8. 1975 - 1988.

The percentage of males that were yearlings (Class I) (20%) is comparable to the 1981 - 1988 mean of 22% whereas the percentage of prime animals (Class III) which progressively has increased since 1981, experienced a decrease from 57% in 1987 to 31% this survey (Fig. 8). This may be possibly explained because of a growing male component in the population. In most years, antlerless males also were classified and the results included in the data (Table 3). Fifty-eight percent of antlerless males classified since 1981 were classified as Class III.

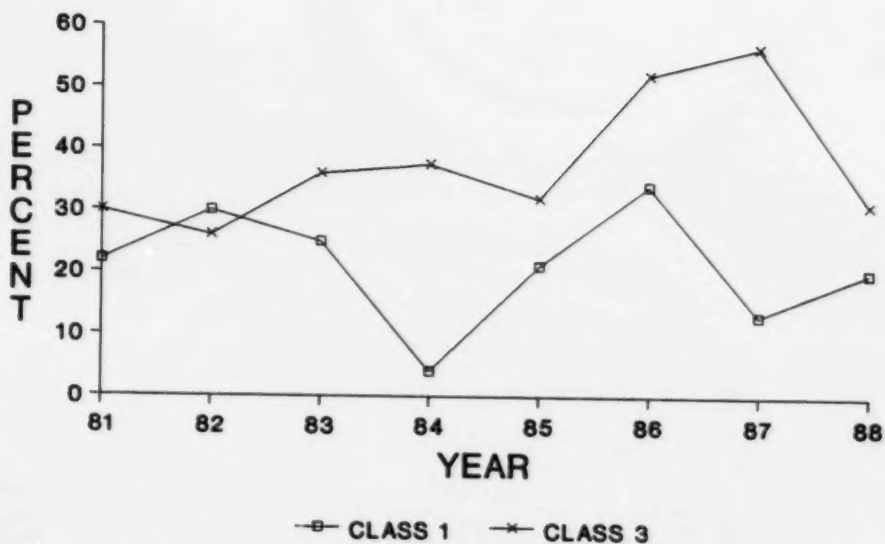


Fig. 8. Percentage of antler Class I and Class III male moose in G.H.A. 8, 1981 - 1988.

Table 3. Age class of male moose in G.H.A. 8, 1981 - 1988.

Survey Year	Survey Date	Number of Males Sampled	Antler Class			Unantlered
			I	II	III	
1981	Dec. 9/81	27	6	7(2)	8(4)	6
1982	Nov. 29/82 Dec. 28/82	27	8	9	7	3
1983	Dec. 5/83	28	7	11	10	0
1984	Nov. 6, 8/84	24	1	14(1)	9	1
1985	Jan. 16/86	37	8(1)	17(2)	12(7)	10
1986	Dec. 10/86	29	10	4	15(1)	1
1987	Jan. 7, 11/88	23	3(1)	7	13(4)	5
1988	Jan. 4, 5, 6/89	55	11(2)	27(8)	17(7)	17

() number of unantlered male moose classified and included in sample

RECOMMENDATIONS

1. An 8 hour age/sex survey should be flown in G.H.A. 8 in November - December each year to provide the local G.H.A. 8 Moose Management Committee with current information to revise long term management and harvest strategies.
2. Future G.H.A. 8 age/sex surveys should include the northern portions to provide comparative data. The 1989 moose population survey (Cross, 1989) indicates this area experienced a 300% increase in numbers since 1986.
3. All age/sex surveys should commence as soon as satisfactory survey conditions exist to take advantage of warmer flying conditions and fewer antler sheds.
4. All flying contracts and arrangements must be in place prior to 1 November.

APPENDIX 1

G.H.A. 8 1988/89 MOOSE AGE/SEX SURVEY DATA SHEETS

MOOSE CENSUS DATA SHEETS

REGION: Northwest DATE: January 18, 1989

BSERVERS: D. Cross, G. Dengate

IRCRAFT COMPANY: Beaver Air Service PILOT: Mark Hoff

IRCRAFT TYPE AND REGISTRATION: Cessna 206 CG-MPZ

EATHER: CLOUD 10/10 Medium TEMPERATURE -15°

WIND calm VISIBILITY unlimited

BSERVING CONDITIONS POOR FAIR GOOD EXCELLENT EXPLANATION FOR CONDITIONS LESS THAN EXCELLENT

A.M. X

P.M. X

REA SURVEYED (BE SPECIFIC) GHA-8 North Moose Lake road - while on moose population survey.

IME OFF:

ANDED:

LYING TIME:

TOTAL FLYING TIME:

URVEY TIME:

TART:

INISH:

TOTAL SURVEY TIME: Survey time not included in 1988/89 moose:hr ratios.

TOTAL FERRY TIME (TOTAL FLYING TIME MINUS TOTAL SURVEY TIME):

FORM INCLUDES BOTH 4,5,6 + 18 JANUARY/89 DATA

RESULTS

GE - SURVEY

REA	Bulls	Cows	Calves	Twins	ANTLER CLASS			Unantlered Bulls
					I	II	III	
North Moose Lk. rd.	11	18	11	2 - set	0	7	4	7
4,5,6 Jan.1989	44	72	42	8 - set	11	20	13	10
TOTAL GHA-8	55	90	53	10-set	11	27	17	17

2 - class 1
5 - class 2
2 - class 3
2 - class 1
8 - class 2
7 - class 3

TRANSECTS

transect #	# Moose	Transect #	# Moose	Transect #	# Moose	Transect #	# Moose

COMMENTS:

Unantlered males classified and included in antler class.

TOTAL GHA 8 sample = 198 moose

m/100 f = 61

f W/O = 47

m:hr = 26 (lower portion)

c/100 f = 59

f W/1 = 33

f W/2 = 10

MOOSE CENSUS DATA SHEETS

REGION: Northwest DATE: January 4, 5, 6, 1989
 OBSERVERS: 4, 5 Jan./89 - D. Cross, G. Dengate; 6 Jan./89 - D. Cross, B. Pelechaty
 AIRCRAFT COMPANY: Beaver Air Service PILOT: Reg Fast
 AIRCRAFT TYPE AND REGISTRATION: Cessna 206 - CG-MPZ

WEATHER: CLOUD see attached sheet TEMPERATURE _____
 WIND _____ VISIBILITY _____
 OBSERVING CONDITIONS POOR FAIR GOOD EXCELLENT EXPLANATION FOR CONDITIONS LESS THAN EXCELLENT

A.M. see attached sheet

P.M. _____

AREA SURVEYED (BE SPECIFIC) GHA 8 - Lower Portion Fig. 3

	Jan. 4/89		Jan. 5/89		Jan. 6/89	
TIME OFF:	2:00		10:50		10:05	
LANDED:	3:55		2:30		11:25	
FLYING TIME:	1:55		3:40		1:20	

TOTAL FLYING TIME: 6 hours, 55 minutes

SURVEY TIME:

START:	2:05		10:55		10:10	
FINISH:	3:45		2:15		11:20	
	1:40		3:20		1:10	

TOTAL SURVEY TIME: 6 hours, 10 minutes

TOTAL FERRY TIME (TOTAL FLYING TIME MINUS TOTAL SURVEY TIME): 45 minutes

RESULTS

AGE - SURVEY

AREA	Bulls	Cows	Calves	Twins	ANTLER CLASS			Unantlered Males
					I	II	III	
Jan. 4/89	16	26	10	2	5	4	7	4 3 class 3 1 class 2
Jan. 5/89	23	41	29	6	6	11	6	6 2 class 3, 2 class 2
Jan. 6/89	5	5	3	0		5		1 2 class 1
TOTAL 4, 5, 6	44	72	42	8				10-

TRANSECTS Total Moose = 158

Transect #	# Moose	Transect #	# Moose	Transect #	# Moose	Transect #	# Moose

COMMENTS:

6 unantlered males classified according to size and included in antler classified males.

Moose data from 4, 5, 6 included in total GHA 8 sample shown on following data sheet.

REGION: Northwest

DATE: January 4, 5, 6, 1989

OBSERVERS: Dale Cross, Gordon Dengate, Bruce Pelechaty

AIRCRAFT COMPANY: Beaver Air Service

PILOT: ■ Reg Fast

AIRCRAFT: Cessna 206, CG - MPZ

SNOW COVER: 22 cm

WEATHER:

January 4, 1989

6/10 cloud temperature -10°C
wind - calm visibility - unlimited
observation conditions - excellent

January 5, 1989

10/10 cloud temperature -10°C
wind NW @ 5 km visibility - unlimited
observation conditions - excellent

January 6, 1989

0/0 cloud temperature - 30°C
wind - calm visibility - unlimited
observation conditions - good, cold, sunny with shadows